

Corroboree- 4-H Across the Seas Science Education Website

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Program of Distinction Category:

Science, Engineering, and Technology Literacy Categories

- Science Engineering & Technology

Sources of funding that support this program:

Internationalize Extension Mini-grant Program: \$9,500.00

Oregon 4-H Foundation: \$ 1,500.00

Oregon State University Extension: FTE of P.I. and 4-H county faculty.

Knowledge and Research Base

Delivering 4-H education programs on the web is a new effort in Oregon. Certain aspects of this design and delivery have been a "learning by doing" process for the 4-H staff involved. We have benefited from the generous support, coaching and creativity of our contract website designer. The program needed to be designed to provide a good learning environment for both students and teachers. On-line publications that provided insight into this new delivery method included <http://ausweb.scu.edu.au> and <http://www.thejournal.com>.

In both Oregon and Victoria, Australia, benchmarks are set forth by the schools' boards of education that are designed to measure student progress. The Victoria and Oregon benchmarks are included in the lessons provided on the website. It was also clear that elementary level teachers were in need of professional development methods for delivering science inquiry programs. In *Designing Professional Development for Teachers of Science and Mathematics* (Loucks-Horsley, Hewson, Love, & Stiles 1998), the improved impact of opportunities to practice a teaching method and then receive feedback from peers over time is described. This method was chosen over traditional teacher training workshops which offer no follow-up or support after the program concludes. The website is an ideal format for ongoing communication between university teacher trainers and teacher peers.

The lessons in *What can we learn at the pond?* (July 2003, Oregon State University Extension and Station Communications, 4-H 3101L), are posted on the website to support teachers in delivering life science content along with a detailed method of coaching youth engaged in inquiry science activities. Oregon's inquiry model is based on *Inquiry and the National Science Standards: A Guide for Teaching and Learning*. (2000).

Needs Assessment

A professional development travel exchange between Oregon 4-H Agents and Australian school teachers was the catalyst for development of the 4-H Corroboree program. After the travel exchange, it was discovered that learners in Oregon and Australian schools could not exchange emails due to security "firewalls" on the Oregon schools' Internet systems. Both Oregon and Australian teachers indicated a desire to develop a program that would allow their students to continue the international relationships which had begun with the travel exchange. The schools in Australia and Oregon were engaged in place-based science education where they collected data over time at a particular habitat site. The teachers wanted to be able to post their data to a dynamic website that would both store the data for future use and allow for comparisons between data page entries from different schools.

An Internationalize Extension Mini-grant was received by Principal Investigator Virginia Bourdeau, State 4-H Specialist, in September 2003 to support development of an interactive website which would allow Oregon and Australian schools to share information on their place-based science inquiry education programs. Prior to development of any website components all students in the initial pilot schools were asked to rate a list of 12 items which could be explored through "e-learning." The initial dynamic data sheets adopted were based on this student feedback. The Corroboree- 4-H Across the Seas Science Website was launched in Spring 2004 after about six months of development.

Goals and Objectives

The 4-H Corroboree project has skill building goals for the participating students, teachers and 4-H agents. The web site is designed to stimulate students and teachers in the USA and Australia to learn about science inquiry and each other by participating in field data collection at a specific location, which will build a record of habitat change over time. Participants will expand their understanding of communities which are natural, built and, in the case of the Australian site's reclamation project, re-created. Through use of the discussion board adults and youth will build a personal relationship with people in another country and build world citizenship skills. The project is also testing a new method of distance education where learning is facilitated in the classroom by a teacher. Elementary school teachers, who often have very little training in teaching science, are building their capacity to facilitate quality life science and science inquiry learning experiences.

The Corroboree project is building the capacity of Oregon 4-H Agents to work internationally as they facilitate the program in their communities.

Target Audience

The program's target audience is 4-H science clubs using outdoor classrooms either in school or after school. The 4-H science clubs deliver place-based authentic science education where students practice inquiry science process skills. Initially two schools in Oregon and three in Australia participated in the program. Seventy-two students participated in the pre- post program evaluation.

Program Design and Content

Type of program

Corroboree is a website based educational program that allows for students and teachers to interact with each other and learn together. It explores science inquiry processes and life science concepts.

Methods used to deliver the program

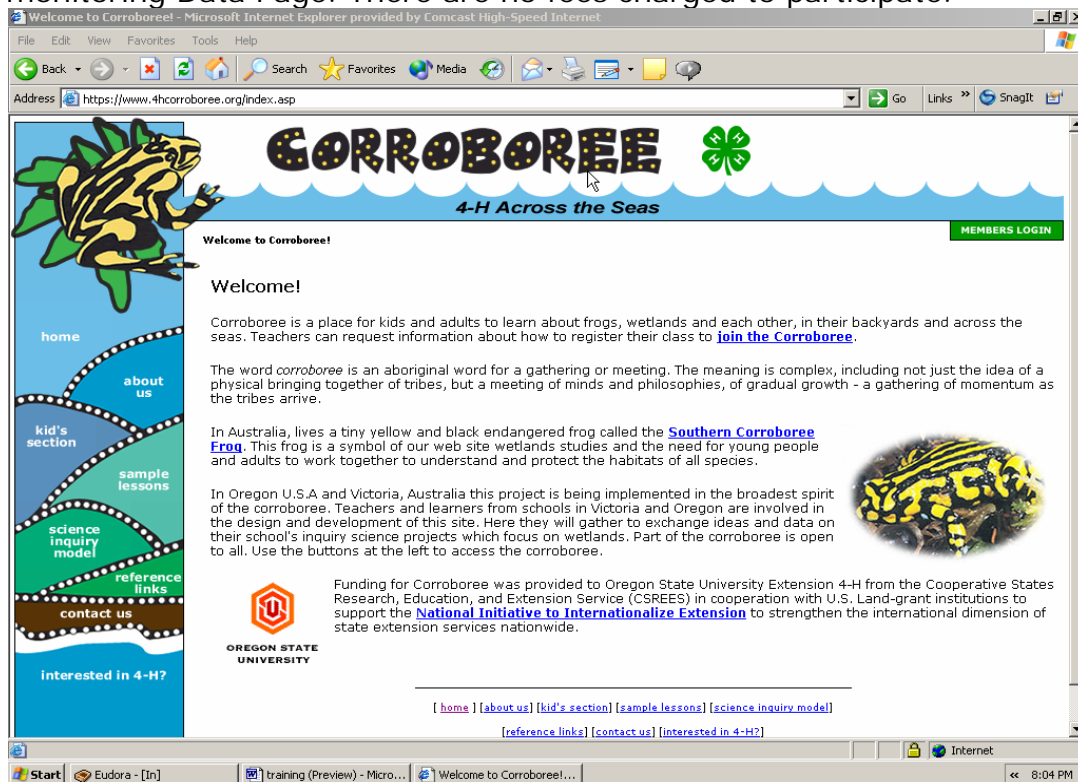
To register to participate in Corroboree a teacher contacts the project manager through a link on the 4-H Corroboree home page at www.4hcorroboree.org. Registered schools are given access to the secure sectors of the site. One of the challenges of providing web access for students under 12 years of age is the need to comply with the national Children's On-line Protection Act, known as "COPA." This is done by housing the discussion board and dynamic data pages in a password protected area of the site. A "home page" is provided where schools can introduce themselves to other participating schools and post six digital photos.

Curricula and/or educational materials

Teachers use activities from the posted Sample Lessons to teach science inquiry processes and life science concepts. The Sample Lessons are keyed to teaching standards and strands required in Oregon and Australia. These lessons are from the Oregon 4-H natural science curricula *What can we learn at the pond?* (4-H 3101L) and *4-H Wetland Wonders* (4-H 3801L) which were adapted for web use. Participating schools collect data in an outdoor classroom to post on the website. The outdoor classroom may be a grassy area on the schoolyard, a nearby pond or wetland or other site frequently visited by students. The data is posted using the dynamic 4-H Natural Science Data Pages for Water, Habitat, Wildlife and Photo Monitoring. Oregon's 4-H Natural Science Project Record sheets (4-H 303LR) provide a focus for data collection and international exchange. Either students or teachers may post data. Once data is posted, schools may use the features of the website to compare their data with the data posted by other participating schools.

In addition to science skills, students learn cultural aspects of another country. A converter is provided to select the units to be used for data display. Clicking the Australian flag displays metric units. Clicking the American flag displays U.S Customary Units. Students and teachers use the Discussion Board to answer posted research questions, exchange thoughts and ideas about their habitat projects and ask questions of each other. Teacher and student feedback will be used to plan on-going improvements to the site. Requirements of schools who wish to participate in the 4-H Corroboree include agreeing to have students and teachers complete program evaluations, actively using an outdoor classroom for science education, posting data collected in the outdoor classroom in one or more of the Data Pages and participating in the Discussion Board. A digital camera is needed to

take photos to post on the school's Homepage and for students to participate in the photo monitoring Data Page. There are no fees charged to participate.



Partnerships or collaborations

Design of the 4-H Corroboree website was a collaborative effort among the five initial pilot testing school teachers in Oregon and Australia, Oregon 4-H Staff, and the web designer. The five schools which participated in the spring 2004 evaluation were Seth Lewelling and Brush College Elementary Schools in Oregon and Commercial Road, Crinigan Road, and Yinnar Primary Schools in Victoria, Australia.

Program Evaluation

Process

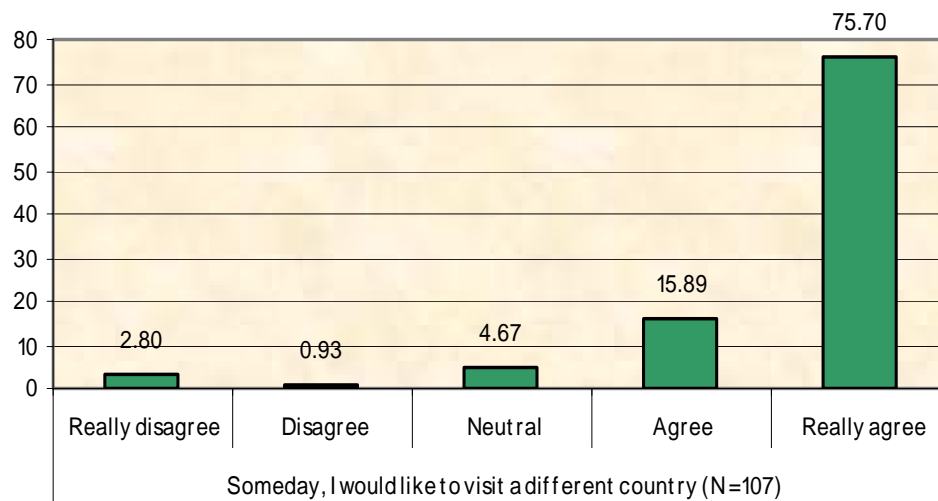
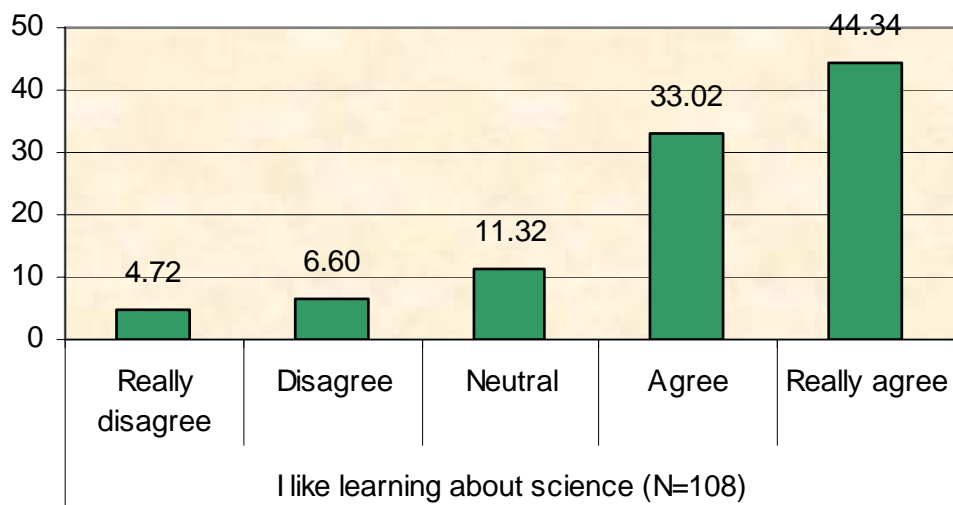
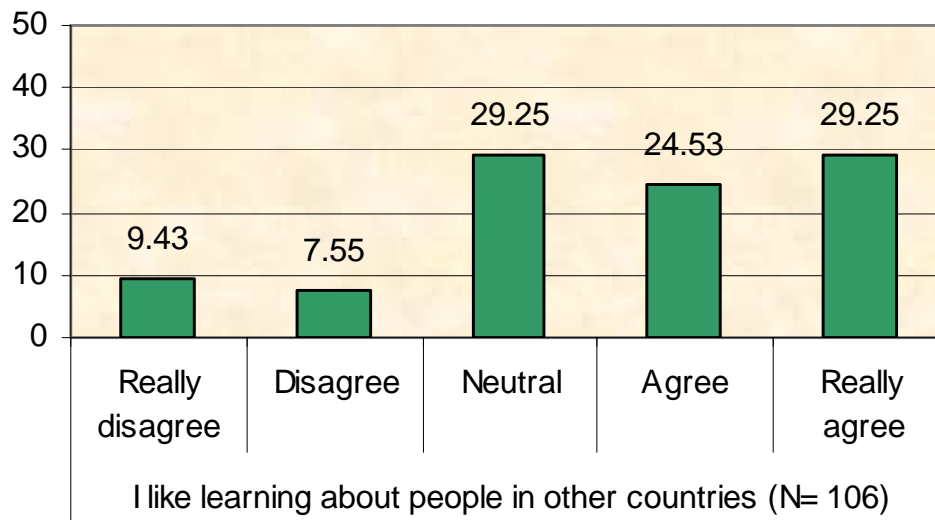
The 2004 spring 4-H Corroboree Program pilot was evaluated with a formative evaluation using pre- post test methodology designed by the Principal Investigator and Dr. Mary Arnold. Students filled out a pre-program evaluation prior to starting the program and a matching post-program evaluation at the end. The post-program evaluation contained additional short answer questions about how the students liked using the website.

Outcomes and Impacts

Students in Oregon and Australia reported statistically significant changes in using the web to learn science ($p = .072$; $N = 69$) and liking to learn about people from other countries ($p = .043$; $N = 66$). Participating teachers reported that the program was effective for helping students learn science. In particular they identified the following program strengths:

- Pictures and graphics on the web site

- The organization of the web site lessons
- The ease of use of the on-line data collection pages



Communication to Stakeholders

A poster reporting on the Corroboree program and its initial results was created and selected for display at Oregon's Extension Fall conference, the 2004 NAE4-HA Conference, and the 2005 Internationalizing Extension Conference. An educational training and information CD using PowerPoint software is being used to communicate about the programs goals and outcomes to date. It was provided to stakeholders and is also used to seek additional participant schools within Oregon.

Program Sustainability

The initial development of the web site has cost \$ 11,000. Additional grants have been written to fund on-going development and new components which the developers hope to add to better meet the needs of students and teachers. If fully funded, these grants will provide an additional \$22,000 for geography and teacher training modules. Website development is costly and currently a service which must be hired from outside the Oregon university system. Extension budgets do not contain the required level of funding for "experimental" or non-traditional programs.

Replication

Other states are welcome to have school groups register to participate in the current web based program. Educational website development requires a different look from traditional 4-H publications. Innovative 4-H educators who have web design skills will best be able to replicate the program, followed by those who can obtain resources to hire web design expertise.

Rationale and Importance of Program

Although costs of website development are an issue, reaching a large number of students and teachers through the web is a cost-efficient way for 4-H Faculty to deliver education. As staff numbers and budgets shrink, driving long distances between schools and communities becomes less practical. In support of this program type, combining science education with an element of cultural exchange seems to increase its impact. Once a website is established, adding additional components focusing on other program areas is relatively inexpensive.

References

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